

REMARKS

The Examiner has rejected claims 13 and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2001/0045175 to Ouchi et al. ("Ouchi") in view of JP 2001-081372 to Ikemoto et al. ("Ikemoto"). The Examiner has also rejected claims 13 and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,063,834 to Kappeler et al. ("Kappeler") in view of Ikemoto. In addition, the Examiner has rejected claims 13, 16, and 18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,888,287 to Brown et al. ("Brown") in view of Ikemoto. The Examiner has also objected to claims 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Ouchi in view of Ikemoto, and further in view of U.S. Patent No. 6,871,941 to Horii et al. ("Horii"). The Examiner has objected to Claim 14 as being dependent upon a rejected base claim. However, Examiner has indicated that Claim 14 would be allowable if rewritten in independent form. Claims 1-12 stand previously withdrawn. Claims 1-20 are currently pending. The following remarks are considered by applicant to overcome each of the Examiner's outstanding rejections to current claims 13-20. An early Notice of Allowance is therefore requested.

I. SUMMARY OF RELEVANT LAW

The determination of obviousness rests on whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. In determining obviousness, four factors should be weighed: (1) the scope and content of the prior art, (2) the differences between the art and the claims at issue, (3) the level of ordinary skill in the art, and (4) whatever objective evidence may be present. Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor. The Examiner carries the burden under 35 U.S.C. § 103 to establish a prima facie case of obviousness and must show that the references relied on teach or suggest all of the limitations of the claims.

II. **REJECTION OF CLAIMS 13 AND 15-18 UNDER 35 U.S.C. §103(A) BASED ON OUCHI IN
VIEW OF IKEMOTO**

On page 3 of the current Office Action, the Examiner rejects claims 13 and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over Ouchi in view Ikemoto. These rejections are respectfully traversed and believed overcome in view of the following discussion.

Claim 13 states:

“A water base ink for ink-jet recording comprising:

“a dispersible coloring agent;

“a propylene glycol ether; and

“a surfactant represented by the following general formula
(3):

“R¹-O-(CH₂CH₂O)_n-SO₃M (3)

“wherein n represents an integer of 2 to 4, R¹ represents an alkyl group having a number of carbon atoms of 12 to 15, and M represents Na or triethanolamine.” (emphasis added).

The Examiner admits that Ouchi fails to disclose a surfactant represented by the Formula (3) of the current application. Office Action (10/25/07), P. 3. As a result, the Examiner cites to Ikemoto for the disclosure of Formula (3). Office Action (10/25/07), P. 3-4. However, the teachings of Ikemoto are directed to an ink containing a non-dispersible coloring agent, i.e., a pigment, while Claim 13 contains a dispersible coloring agent. Non-dispersible coloring agents behave very differently from dispersible coloring agents. Surfactants that work well with non-dispersible coloring agents do not necessarily work well with dispersible coloring agents. In fact, Ikemoto specifically states that the polyoxyethylene alkyl ethereal sulfate derivative disclosed is included solely to disperse the pigment.

On the other hand, the surfactants disclosed in Ouchi are not included as dispersants as the ink of Ouchi contains a self-dispersing pigment. As stated in Ouchi, “[t]he

pigment for use in the invention preferably include those pigments which can be well dispersed in the above-described vehicles....” Ouchi, P. 5, ¶ [0067]. Moreover, there is no suggestion in either Ouchi or Ikemoto that the polyoxyethylene alkyl ethereal sulfate derivative disclosed in Ikemoto is substitutable for the surfactants disclosed in Ouchi. As a result, one of ordinary skill in the art would find (1) no motivation to combine the teachings of Ikemoto with those of Ouchi and (2) no reasonable expectation of success of combining the teachings of Ikemoto with those of Ouchi.

The Examiner asserts that it is obvious to combine Ouchi and Ikemoto. However, Examiner’s logic on this matter is flawed. Ikemoto clearly teaches dispersing a non-dispersible pigment by using a dispersant. Ouchi, on the other hand, teaches the use of a self-dispersing pigment. Once the pigment is self-dispersing, there is no need to use a dispersing agent. Therefore, there is no reason to combine the dispersant of Ikemoto with the ink compositions of Ouchi.

Moreover, even if there were a motivation, which Applicants contend there is not, the combination of the references would still fail to teach all of the elements of Claim 13. In particular, Ikemoto fails to teach combining a self-dispersing pigment with a dispersant. Claim 13 clearly states that the ink has “a dispersible coloring agent” **and** “a surfactant represented by the following general formula (3)”. Ikemoto fails to teach or suggest such a combination. Therefore, the Examiner cannot show a motivation to combine “a dispersible coloring agent” with “a surfactant represented by the following general formula (3)”, or that there is a reasonable expectation of success of the combination of Ikemoto with Ouchi.

In addition, Ikemoto teaches in paragraph [0016] to use polyoxyethylene alkyl ethereal sulfate as the dispersing agent.

Ouchi teaches in paragraph [0067] (portion pointed out by the Examiner on page 3 of the current Office action) that “[t]he pigment for use in the invention preferably include those pigments which can be well dispersed in the above-described vehicles....” (emphasis added).

Since Ouchi uses the pigments which can be well dispersed (i.e., dispersible pigments), there would be no motivation for a person skilled in the art to modify Ouchi by using the polyoxyethylene alkyl ethereal sulfate which Ikemoto teaches to use as the dispersing agent because such dispersible pigment generally does not require any dispersing agent.

Since the references cited by the Examiner (a) fail to teach or suggest a dispersible coloring agent and a surfactant represented by the following general formula (3), and (b) there is no motivation to combine the references and no reasonable expectation of success of the combination, Applicants respectfully assert that Examiner has failed to establish a prima facie case of obviousness of independent Claim 13, and corresponding claims 15-18 as they are ultimately dependent from Claim 13. Therefore, Applicants respectfully request that Examiner remove the rejections of claims 13 and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Pub. No. 2001/0045175 to Ouchi et al. in view of JP 2001-081372 to Ikemoto et al.

III. REJECTION OF CLAIMS 13 AND 15-18 UNDER 35 U.S.C. §103(A) BASED ON KAPPELE IN VIEW OF IKEMOTO

On page 4 of the current Office Action, the Examiner rejects claims 13 and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over Kappele in view Ikemoto. These rejections are respectfully traversed and believed overcome in view of the following discussion.

Claim 13 states:

“A water base ink for ink-jet recording comprising:

“a dispersible coloring agent;

“a propylene glycol ether; and

“a surfactant represented by the following general formula (3):

“R¹-O-(CH₂CH₂O)_n-SO₃M (3)

“wherein n represents an integer of 2 to 4, R¹ represents an alkyl group having a number of carbon atoms of 12 to 15, and M represents Na or triethanolamine.” (emphasis added).

The Examiner admits that Kappelé fails to disclose a surfactant represented by the Formula (3) of the current application. Office Action (10/25/07), P. 4. As a result, the Examiner cites to Ikemoto for the disclosure of Formula (3). Office Action (10/25/07), P. 4-5. However, as discussed above, the teachings of Ikemoto are directed to an ink containing a non-dispersible coloring agent, i.e., a pigment, while Claim 13 contains a dispersible coloring agent. Non-dispersible coloring agents behave very differently from dispersible coloring agents. Surfactants that work well with non-dispersible coloring agents do not necessarily work well with dispersible coloring agents. In fact, Ikemoto specifically states that the polyoxyethylene alkyl ethereal sulfate derivative disclosed is included solely to disperse the pigment.

On the other hand, the surfactants disclosed in Kappelé at column 4, lines 33-50 (the portion to which Examiner cites) appear to be used as dispersants, as the ink of Kappelé may contain a non-dispersible coloring agent, i.e., a pigment. See Kappelé, Col. 6, Lns. 3-13. This is because a dispersant would only be needed if a non-dispersible coloring agent were used, since a dispersible coloring agent would require no dispersant. Moreover, there is no suggestion in either Kappelé or Ikemoto that the polyoxyethylene alkyl ethereal sulfate derivative disclosed in Ikemoto is substitutable for the surfactants disclosed in Kappelé. As a result, one of ordinary skill in the art would find (1) no motivation to combine the teachings of Ikemoto with those of Kappelé and (2) no reasonable expectation of success of combining the teachings of Ikemoto with those of Kappelé.

The Examiner asserts that it is obvious to combine Kappelé and Ikemoto. However, Examiner's logic on this matter is flawed. Ikemoto clearly teaches dispersing a non-dispersible pigment by using a dispersant. Even if Kappelé teaches the use of a self-dispersing coloring agent, which Applicants contend Kappelé does not, there is no motivation to combine a dispersant with a self-dispersing coloring agent. Once the coloring agent is self-dispersing, there

is no need to use a dispersing agent. Therefore, there is no reason to combine the dispersant of Ikemoto with the ink compositions of Kappelé.

Moreover, even if there were a motivation, which Applicants contend there is not, the combination of the references would still fail to teach all of the elements of Claim 13. In particular, Ikemoto fails to teach combining a self-dispersing pigment with a dispersant. Claim 13 clearly states that the ink has “a dispersible coloring agent” **and** “a surfactant represented by the following general formula (3)”. Ikemoto fails to teach or suggest such a combination. Therefore, the Examiner cannot show a motivation to combine “a dispersible coloring agent” with “a surfactant represented by the following general formula (3)”, or that there is a reasonable expectation of success of the combination of Ikemoto with Kappelé.

In addition, as described above, Ikemoto teaches in paragraph [0016] to use polyoxyethylene alkyl ethereal sulfate as the dispersing agent.

Kappelé relates to a wet-rub resistant ink composition including a specific binder material. See Kappelé, Abstract. The Examiner asserts on page 4 of the current Office Action that Kappelé “discloses a water-based ink for ink jet recording including a dispersible coloring agent (column: 6, line: 3-67)....” However, Applicants respectfully assert that this portion of Kappelé does not explicitly describe any pigment (i.e., coloring agent) which is dispersible.

Even if Kappelé does teach a dispersible pigment, there would be no motivation for a person skilled in the art to modify Kappelé by using the polyoxyethylene alkyl ethereal sulfate which Ikemoto teaches to use as the dispersing agent, as such a dispersible pigment does not generally require any dispersing agent.

Since the references cited by the Examiner (a) fail to teach or suggest a dispersible coloring agent **and** a surfactant represented by the following general formula (3), and (b) there is no motivation to combine the references and no reasonable expectation of success of the combination, Applicants respectfully assert that Examiner has failed to establish a prima facie case of obviousness of independent Claim 13, and corresponding claims 15-18 as they are ultimately dependent from Claim 13. Therefore, Applicants respectfully request that Examiner

remove the rejections of claims 13 and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,063,834 to Kappeler et al. in view of JP 2001-081372 to Ikemoto et al.

IV. REJECTION OF CLAIMS 13, 16, AND 18 UNDER 35 U.S.C. §103(A) BASED ON BROWN IN VIEW OF IKEMOTO

On page 5 of the current Office Action, the Examiner rejects claims 13 and 15-18 under 35 U.S.C. § 103(a) as being unpatentable over Brown in view Ikemoto. These rejections are respectfully traversed and believed overcome in view of the following discussion.

Claim 13 states:

“A water base ink for ink-jet recording comprising:

“a dispersible coloring agent;

“a propylene glycol ether; and

“a surfactant represented by the following general formula
(3):

“ $R^1-O-(CH_2CH_2O)_n-SO_3M$ (3)

“wherein n represents an integer of 2 to 4, R^1 represents an alkyl group having a number of carbon atoms of 12 to 15, and M represents Na or triethanolamine.” (emphasis added).

The Examiner admits that Brown fails to disclose a surfactant represented by the Formula (3) of the current application. Office Action (10/25/07), P. 5. As a result, the Examiner cites to Ikemoto for the disclosure of Formula (3). Office Action (10/25/07), P. 5. However, as discussed above, the teachings of Ikemoto are directed to an ink containing a non-dispersible coloring agent, i.e., a pigment, while Claim 13 contains a dispersible coloring agent. Non-dispersible coloring agents behave very differently from dispersible coloring agents. Surfactants that work well with non-dispersible coloring agents do not necessarily work well with dispersible

coloring agents. In fact, Ikemoto specifically states that the polyoxyethylene alkyl ethereal sulfate derivative disclosed is included solely to disperse the pigment.

On the other hand, the surfactants disclosed in Brown are added to achieve the desired reduction of smear. Brown, Col. 2, Lns. 20-21. While Brown does disclose the use of a dispersant, such a dispersant would only be needed if a non-dispersible coloring agent was used. See Brown, Col. 2, Lns. 46-47 (“Dispersing agents may be used to help suspend the pigment particles in the ink composition.”). There is no suggestion in either Brown or Ikemoto that the polyoxyethylene alkyl ethereal sulfate derivative disclosed in Ikemoto is substitutable for the surfactants disclosed in Brown. As a result, one of ordinary skill in the art would find (1) no motivation to combine the teachings of Ikemoto with those of Brown and (2) no reasonable expectation of success of combining the teachings of Ikemoto with those of Brown.

The Examiner asserts that it is obvious to combine Brown and Ikemoto. However, Examiner’s logic on this matter is flawed. Ikemoto clearly teaches dispersing a non-dispersible pigment by using a dispersant. Even if Brown does teach the use of a self-dispersing coloring agent, which Applicants contend Brown does not, there is no motivation to combine a dispersant with a self-dispersing coloring agent. Once the coloring agent is self-dispersing, there is no need to use a dispersing agent. Therefore, there is no reason to combine the dispersant of Ikemoto with the ink compositions of Brown.

Moreover, even if there were a motivation, which Applicants contend there is not, the combination of the references would still fail to teach all of the elements of Claim 13. In particular, Ikemoto fails to teach combining a self-dispersing pigment with a dispersant. Claim 13 clearly states that the ink has “a dispersible coloring agent” **and** “a surfactant represented by the following general formula (3)”. Ikemoto fails to teach or suggest such a combination. Therefore, the Examiner cannot show a motivation to combine “a dispersible coloring agent” with “a surfactant represented by the following general formula (3)”, or that there is a reasonable expectation of success of the combination of Ikemoto with Sanada.

In addition, as described above, Ikemoto teaches in paragraph [0016] to use polyoxyethylene alkyl ethereal sulfate as the dispersing agent.

Brown relates to an ink jet composition which exhibits a reduced tendency to smear upon application to a substrate, and includes a propylene glycol ether and/or a propylene glycol ether acetate, a surfactant, and a colorant. See Brown, Abstract. The Examiner asserts on page 5 of the current Office action that Brown “discloses a water-based ink for ink jet recording including a dispersible coloring agent (column: 2, line: 39-60)...” However, Applicants respectfully assert that this portion of Brown does not explicitly describe any pigment (i.e., coloring agent) which is dispersible.

Even if brown does teach a dispersible pigment, there would be no motivation for a person skilled in the art to modify Brown by using the polyoxyethylene alkyl ethereal sulfate which Ikemoto teaches to use as the dispersing agent because such dispersible pigment generally does not require any dispersing agent.

Since the references cited by the Examiner (a) fail to teach or suggest a dispersible coloring agent and a surfactant represented by the following general formula (3), and (b) there is no motivation to combine the references and no reasonable expectation of success of the combination, Applicants respectfully assert that Examiner has failed to establish a prima facie case of obviousness of independent Claim 13, and corresponding claims 16 and 18 as they are ultimately dependent from Claim 13. Therefore, Applicants respectfully request that Examiner remove the rejections of claims 13, 16, and 18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,888,287 to Brown et al. in view of JP 2001-081372 to Ikemoto et al.

V. REJECTION OF CLAIMS 19 AND 20 UNDER 35 U.S.C. §103(A)

On page 6 of the current Office Action, the Examiner rejects claims 19 and 20 under 35 U.S.C. § 103(a) as being unpatentable over various references. These rejections are respectfully traversed and believed overcome in view of the following discussion.

Claims 19 and 20 are each ultimately dependent from Claim 13. As Claim 13 is allowable, so must be claims 19 and 20. Therefore, Applicants respectfully request the Examiner remove the rejections of Claims 19 and 20 under 35 U.S.C. § 103(a).

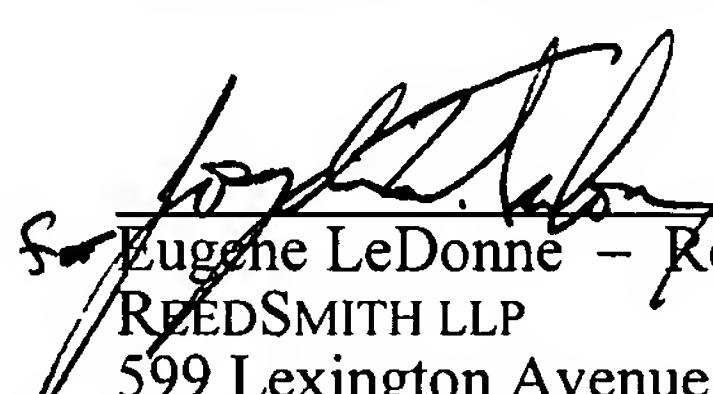

VI. OBJECTION TO CLAIM 14 AS BEING DEPENDENT UPON A REJECTED BASE CLAIM

On page 7 of the current Office Action, the Examiner objects to Claim 14 as being dependent upon a rejected base claim. This objection is respectfully traversed and believed overcome in view of the following discussion.

Claim 14 is dependent upon independent Claim 13. As Claim 13 is allowable, so must be Claim 14. Therefore, Applicants respectfully request the Examiner remove the objection to Claim 14 as being dependent upon a rejected base claim.

Based upon the above remarks, Applicant respectfully requests reconsideration of this application and its early allowance. Should the Examiner feel that a telephone conference with Applicant's attorney would expedite the prosecution of this application, the Examiner is urged to contact him at the number indicated below.

Respectfully submitted,

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